

WHAT IS CLAIMED IS:

1. An apparatus for manufacturing an optical fiber
soot according to a vapor-phase axial deposition method,
5 wherein a cross-section shape of a combustion nozzle of a
side burner for heating a core portion is rectangular.

2. The manufacturing apparatus according to claim 1,
wherein a width of a rectangular cross-section of the
10 combustion nozzle of the side burner is 0.7 times or more
the diameter of the core portion.

3. The manufacturing apparatus according to claim 1,
wherein a length of a tapered portion of the core soot tip
15 portion is controllable, by changing a height H of the
rectangular combustion nozzle of the side burner.

4. The manufacturing apparatus according to claim 1,
wherein the rectangular combustion nozzle of the side
20 burner is separated left and right at the center thereof.

5. The manufacturing apparatus according to claim 4,
wherein a baffleplate is provided at the center of the
rectangular combustion nozzle of the side burner, to
25 separate a flame of the side burner left and right.

6. The manufacturing apparatus according to claim 1,
wherein at least two layers of combustible gas are formed
in the side burner.

5

7. The manufacturing apparatus according to claim 1,
wherein the length of the tapered portion of the core soot
tip portion is controllable, by changing the nozzle tip
shape (height of taper) of the burner hood to be attached
10 to the burner tip portion of the side burner without
changing the burner shape.

8. The manufacturing apparatus according to claim 7,
wherein a height h of a hood outlet of the burner hood to
15 be attached to the burner tip portion of the side burner
is $0.5H$ or greater, to a height H of the burner.

9. A method for manufacturing an optical fiber soot,
comprising using an apparatus for manufacturing an optical
20 fiber soot,

wherein, in the apparatus according to a vapor-phase
axial deposition method, a cross-section shape of a
combustion nozzle of a side burner for heating a core
portion is rectangular.

25

10. The manufacturing method according to claim 9, wherein a width of a rectangular cross-section of the combustion nozzle of the side burner is 0.7 times or more the diameter of the core portion.

5

11. The manufacturing method according to claim 9, wherein a length of a tapered portion of the core soot tip portion is controllable, by changing a height H of the rectangular combustion nozzle of the side burner.

10

12. The manufacturing method according to claim 9, wherein the rectangular combustion nozzle of the side burner is separated left and right at the center thereof.

15

13. The manufacturing method according to claim 9, wherein at least two layers of combustible gas are formed in the side burner.

14. The manufacturing method according to claim 9, wherein the length of the tapered portion of the core soot tip portion is controllable, by changing the nozzle tip shape (height of taper) of the burner hood to be attached to the burner tip portion of the side burner without changing the burner shape.